

REMARKS

I. Formalities

Claims 1, 3, 15, and 17 have been amended, new claims 29-31 have been added, and claims 23-28 have been canceled herein. Support for the amendments can be found in the originally-filed application at least at page 4, line 13 to page 5, line 7, page 12, lines 20-21, and in FIGs. 1 and 4. Support for the new claims can be found at least at page 11, lines 15-19 and in FIG. 1.

Accordingly, Applicants respectfully submit that no new matter is added herein.

II. Response to the 35 U.S.C. §102 Rejections

Claims 1-3 and 5-7 were rejected under 35 U.S.C. §102(b) as being allegedly anticipated by U.S. Patent No. 5,241,456 to Marcinkiewicz et al. (hereinafter “Marcinkiewicz”). These rejections are respectfully traversed in view of the remarks made below.

A. Remarks Directed to Claim 1

Claim 1 has been amended herein to require that the support substrate be a metal support substrate. Marcinkiewicz fails to disclose the limitations of amended claim 1, as more fully discussed below.

Marcinkiewicz, at column 7, lines 50-51, discloses a substrate 12 that “is preferably alumina or another ceramic material.” Marcinkiewicz also makes several other references to substrate 12 as being made of a ceramic material, e.g., at column 1, line 46, column 2, line 60, column 8, lines 59-66, and column 9, lines 32 and 34. Marcinkiewicz makes a single reference to a non-ceramic substrate, at column 9, lines 22-24, but this single reference, like the rest of Marcinkiewicz, does not disclose the concept of a metal support substrate, as required by amended claim 1. The invention of Marcinkiewicz, in fact, would not function if substrate 12 were metal because in that case the electronic chips 26 and 36 and the feedthroughs 18 (see FIG. 1) would all be electrically shorted together.

Furthermore, claim 1 requires an electronic device over the support substrate. In contrast, Marcinkiewicz shows electronic devices (chips 26, 36) in a cavity within the substrate 12 (FIGs. 1 and 3-6) and in an aperture within substrate 12 (FIG. 8) (see also column 7, lines 51-53, column 8, lines 45-53, and column 10, lines 61-66). Marcinkiewicz does not anywhere disclose an electronic device over the support substrate.

Still further, claim 1 requires a cover comprising an interconnect structure. Marcinkiewicz discloses “a cap or cover 66 . . . sealed to the top of the frame 64 . . .” (See column 10, lines 20-21.) Applicants respectfully point out that although the Office Action refers to element 64 as a cover, (see page 3 of the Office Action), Marcinkiewicz clearly states that element 64 is a sealing frame (see column 10, line 17), and refers to element 66 as a cap or cover. Marcinkiewicz does not show or disclose a cover comprising an interconnect structure. Element 66 is the only element shown in Marcinkiewicz that is referred to, or can be construed, as a cover. As shown in FIGs. 4-6 of Marcinkiewicz, cover 66 does not comprise an interconnect structure. Furthermore, nothing in the text of Marcinkiewicz shows or discloses that cover 66 comprises an interconnect structure. On the contrary, Marcinkiewicz shows that cover 66 is located above the only elements of Marcinkiewicz that can be construed as an interconnect structure.

Applicants have shown that Marcinkiewicz fails to show or disclose multiple limitations of claim 1, as amended. In particular, Marcinkiewicz fails to show or disclose, at least: (1) a metal support substrate; (2) electronic devices disposed above the support substrate; and (3) a cover comprising an interconnect structure.

In light of the foregoing remarks, Applicants respectfully submit that Marcinkiewicz fails to disclose the limitations of claim 1, and that the rejection of claim 1 should be withdrawn. Applicants therefore respectfully request that claim 1 be allowed.

B. Remarks Directed to Claims 2, 3, and 5-7

Dependent claims must be construed to include all of the limitations of the claims from which they depend, as required by 37 C.F.R. 1.75(c) and M.P.E.P. 608.01(n). Therefore, claims 2, 3, and 5-7, which depend from claim 1, are also not shown or disclosed by Marcinkiewicz for

at least the same reasons as listed earlier for claim 1, and should also be allowed for at least those same reasons.

Furthermore, Applicants respectfully submit that it has been shown above that Marcinkiewicz fails to show or disclose a cover comprising an interconnect structure. From this showing it follows that Marcinkiewicz fails to show or disclose an interconnect structure located within the cover, as required by claim 2. Applicants further respectfully submit that the figure relied upon by the Office Action as disclosing the limitation of an interconnect structure located within a cover (FIG. 1) fails to show even so much as a cover alone. Accordingly, it is respectfully submitted that claim 2 should be allowed for at least these additional reasons.

Still further, Applicants respectfully submit that it has been shown above that Marcinkiewicz fails to show or disclose a cover comprising an interconnect structure. From this showing it follows that Marcinkiewicz fails to show or disclose an interconnect structure located at a surface of the cover, as required by claim 3. Accordingly, it is respectfully submitted that claim 3 should be allowed for at least this additional reason.

III. Response to the 35 U.S.C. §103 Rejections

Claims 4 and 8-22 were rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Marcinkiewicz in view of “the remark,” (see page 5, line 2 of the Office Action), which Applicants assume is meant to refer to the remarks made on page 5 of the Office Action itself. These rejections are respectfully traversed in view of the remarks made below.

A. Remarks Directed to Claims 4 and 8-14

It has been shown above that Marcinkiewicz does not show or disclose at least: (1) a metal support substrate; (2) electronic devices disposed above the support substrate; and (3) a cover comprising an interconnect structure. Applicants respectfully submit that just as there is no showing or disclosure of limitations (1) to (3) above, so also there is no suggestion or teaching in Marcinkiewicz of the above limitations (1) to (3). In fact, it has been shown above that

Marcinkiewicz teaches away from at least limitation (1). Accordingly, Applicants respectfully submit that claim 1 is not made obvious by Marcinkiewicz.

Dependent claims must be construed to include all of the limitations of the claims from which they depend, as required by 37 C.F.R. 1.75(c) and M.P.E.P. 608.01(n). Therefore, claims 4 and 8-14, which depend from claim 1, are not made obvious by Marcinkiewicz for at least the same reasons as listed above for claim 1, and should also be allowed for at least those same reasons.

Additionally, claim 8 requires that the impedance transformation provided by the interconnect structure comprise a zero inductance ground potential for the electronic device. Applicants respectfully submit that Marcinkiewicz does not teach or suggest any configuration in which a zero inductance ground potential is possible. In order to achieve a zero inductance ground potential, the Marcinkiewicz device would have to be modified by splitting feedthrough 18 into several layers and arranging metal traces within the layers in a meaningful way to form a capacitor, an inductor, or the like. Marcinkiewicz does not teach or suggest: (1) providing a zero inductance ground potential; or (2) the incorporation of capacitors, inductors, or the like. Moreover, Marcinkiewicz also fails to teach or suggest even the concept of impedance matching. Accordingly, Applicants respectfully submit that the limitations of claim 8 are not made obvious by Marcinkiewicz. Claim 8 is therefore allowable for at least these additional reasons. Claim 9 depends from claim 8, and is therefore also allowable at least by virtue of that dependence.

Additionally, claim 10 requires that the interconnect structure comprise a matching network. Applicants respectfully submit that Marcinkiewicz does not teach or suggest any configuration in which impedance matching occurs. In order to achieve impedance matching, the Marcinkiewicz device would have to be modified by splitting feedthrough 18 into several layers and arranging metal traces within the layers in a meaningful way to form a capacitor, an inductor, or the like. Marcinkiewicz does not teach or suggest: (1) providing a zero inductance ground potential; or (2) the incorporation of capacitors, inductors, or the like. Moreover, Marcinkiewicz also fails to teach or suggest even the concept of impedance matching. Accordingly, Applicants respectfully submit that the limitations of claim 10 are not made obvious by Marcinkiewicz. Claim 10 is therefore allowable for at least these additional reasons.

B. Remarks Directed to Claim 15

Claim 15 has been amended herein to require that the flange be a metal flange. Marcinkiewicz fails to teach or suggest the limitations of amended claim 15, as more fully discussed below.

Marcinkiewicz, at column 7, lines 50-51, discloses a substrate 12 that “is preferably alumina or another ceramic material.” Marcinkiewicz also makes several other references to substrate 12 as being made of a ceramic material, e.g., at column 1, line 46, column 2, line 60, column 8, lines 59-66, and column 9, lines 32 and 34. Marcinkiewicz makes a single reference to a non-ceramic substrate, at column 9, lines 22-24, but this single reference, like the rest of Marcinkiewicz, does not teach or suggest the concept of a metal flange, as required by amended claim 15. The invention of Marcinkiewicz, in fact, would not function if substrate 12 were metal because in that case the electronic chips 26 and 36 and the feedthroughs 18 (see FIG. 1) would all be electrically shorted together.

Still further, claim 15 requires a lid comprising a multi-functional interconnect system. Marcinkiewicz discloses “a cap or cover 66 . . . sealed to the top of the frame 64 . . .” (See column 10, lines 20-21.) Marcinkiewicz does not show or disclose a lid comprising a multi-functional interconnect system. Element 66 is the only element shown in Marcinkiewicz that is referred to, or can be construed, as a cover or lid. As shown in FIGs. 4-6 of Marcinkiewicz, cover 66 does not comprise an interconnect system. Furthermore, nothing in the text of Marcinkiewicz shows or discloses that cover 66 comprises an interconnect system. On the contrary, Marcinkiewicz shows that cover 66 is located above the only elements of Marcinkiewicz that can be construed as an interconnect system.

Applicants have shown that Marcinkiewicz fails to show or disclose multiple limitations of claim 15, as amended. In particular, Marcinkiewicz fails to show or disclose, at least: (1) a metal flange; and (2) a lid comprising an interconnect system.

In light of the foregoing remarks, Applicants respectfully submit that Marcinkiewicz fails to disclose the limitations of claim 15, and that the rejection of claim 15 should be withdrawn. Applicants therefore respectfully request that claim 15 be allowed.

C. Remarks Directed to Claims 16-22

Dependent claims must be construed to include all of the limitations of the claims from which they depend, as required by 37 C.F.R. 1.75(c) and M.P.E.P. 608.01(n). Therefore, claims 16-22, which depend from claim 15, are also not anticipated by Marcinkiewicz for at least the same reasons as listed earlier for claim 15, and should also be allowed for at least those same reasons.

Furthermore, Applicants respectfully submit that it has been shown above that Marcinkiewicz fails to teach or suggest a lid comprising an interconnect system. From this showing it follows that Marcinkiewicz fails to teach or suggest an interconnect system located within the lid, as required by claim 16. Accordingly, it is respectfully submitted that claim 16 should be allowed for at least these additional reasons.

Still further, Applicants respectfully submit that it has been shown above that Marcinkiewicz fails to teach or suggest a lid comprising an interconnect system. From this showing it follows that Marcinkiewicz fails to teach or suggest an interconnect system located below and adjacent to a bottom surface of the lid, as required by amended claim 17. Accordingly, it is respectfully submitted that claim 17, as amended, should be allowed for at least these additional reasons.

IV. Remarks Regarding the New Claims

New claims 29-31 have been added herein. Support for the new claims can be found at least at page 11, lines 15-19 and in FIG. 1. Accordingly, Applicants respectfully submit that no new matter has been added herein. Applicants further respectfully submit that Marcinkiewicz fails to show, disclose, teach, or suggest the limitations of the new claims. More specifically, Marcinkiewicz fails to show, disclose, teach, or suggest: (1) a wire bond-less electronic component having a multi-layer interconnect structure; (2) a wire bond-less electronic component in which a portion of an interconnect structure providing a zero inductance ground

potential is located adjacent to an outer perimeter of a cover; and (3) a wire bond-less electronic component having an electrically floating portion located within the cover. The new claims 29-31 are allowable for at least the foregoing reasons. New claims 29-31 are further allowable at least because of their dependence from claim 1, which Applicants respectfully submit has itself been shown to be allowable in the foregoing discussion. Accordingly, Applicants respectfully request that the new claims be allowed.

CONCLUSION

Applicants have made an earnest attempt to place this case in condition for allowance. In light of the remarks set forth above, Applicants respectfully request reconsideration and allowance of all of the pending claims.

No fees are believed to be due in connection with this Response to Office Action. However, the Commissioner for Patents is hereby authorized to charge any required fees necessitated by this Response to Office Action, or credit any overpayment, to Account No. 02-4467.

If there are matters that can be discussed by telephone to further the prosecution of this application, Applicants invite Examiner Mai-Huong C. Tran to call the undersigned attorney at the Examiner's convenience.

Respectfully submitted,



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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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